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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 92-24] [Oct. 16, 1992]

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Insect Science Plant Disease Weed Science

No. 92-24
Oct. 16, 1992

NEWS

UNIVERSITY OF NEBRASKA COOPERATIVE EXTENSION • INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES

Insect Science

Scout fields now

Potential up for Russian wheat aphid problems

The potential for Russian wheat aphid infestations this fall is greater than it has been for several years. Several reasons account for this increase. The increased summer rainfall meant alternate host grasses for aphids remained green longer into the season and began fall growth earlier. This lush growth has supported an increased number of aphids. In a recent survey of crested wheatgrass, intermediate wheatgrass and wildrye in the southern half of the

Panhandle, 83% of the samples contained Russian wheat aphids ranging from 1 to 78 per square foot (average = 13.4). The presence of Russian wheat aphids in fields with volunteer wheat is another concern.

Suction trap catches at the High Plains Ag Lab near Sidney and at Scottsbluff indicate increased Russian wheat aphid flight activity from late July into September. This increased aphid activity along with an increase in volunteer wheat, has increased the incidence of the Russian wheat aphid this fall. In addition, early emerging wheat and the drier and warmer conditions so far this fall tend to increase the potential for Russian wheat aphid problems.

Growers are urged to scout their winter wheat fields this fall for Russian wheat aphid infestations. Infestations are likely to be most severe where wheat was planted early (before Sept. 5-10), near fields of volunteer wheat that have been growing a long time or adjacent to wheatgrass Conservation Reserve Program (CRP) areas. Fields should be checked as soon as possible for the presence of Russian wheat aphids. If Russian wheat aphids are found, estimate the infestation by randomly selecting at least 100 plants and inspecting each

for the presence of Russian wheat aphids. A fall treatment is justified if 20% of the plants are infested with Russian wheat aphids. Fields that show a sub-economic infestation (<20%) early in the fall should be resampled later this fall.

Russian wheat aphids must be present on a plant for the plant to be considered infested because in the fall damaged plants may or may not be infested with aphids. Populations of oat bird-cherry aphids and greenbugs, two aphids that rarely damage wheat in this area, are common this year; therefore, proper identification is important to verify the presence of Russian wheat aphids.

Gary Hein
Extension Entomologist
Scottsbluff

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We want you . . .

to tell us what you like and don't like about this newsletter. Please complete the survey in the Oct. 2 *IPW News* and return it postage paid. Your opinion is important. Every survey will be carefully read and considered as we plan for next year's newsletter.



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Cooperative Extension provides information and educational programs to all people without regard to race, color, national origin, sex or handicap.

Winter meetings

CPMU Conference

The 1992 Crop Pest Management Update (CPMU) conference will be Dec. 3-4 at the Ramada Inn in Kearney. This conference is designed to provide agricultural professionals the latest information about field crop pest management. The meeting will begin at noon Dec. 3 and end at 3 p.m. Dec. 4. Registration is \$75 before Nov. 23 and \$100 afterward.

Crop Protection Clinics

The 1993 Crop Protection Clinics this year will also feature discussions of atrazine alternatives; workable, economical pest management solutions which also consider environmental impacts; herbicide resistance problems; new products and label changes; and updates on weed, disease and insect management. Commercial pesticide applicator recertification also will be conducted. All meetings will be held from 8:30 a.m. to 3:30 p.m. Registration at the door is \$17 and includes lunch, refreshments, proceedings, and publications. For more information, contact your local Extension agent or Alex Martin, Extension Weeds Specialist, 362G Plant Science Bldg., UNL, Lincoln, NE 68583-0910.

Jan. 5, Lincoln, Lancaster County Extension Office
 Jan. 6, Auburn, Arbor Manor
 Jan. 7, Norfolk, Villa Inn
 Jan. 8, Fremont, Holiday Lodge
 Jan. 12, O'Neill, Legion Club
 Jan. 13, Broken Bow, Elks Club
 Jan. 14, Hastings, Holiday Inn
 Jan. 15, Fairbury, 4-H Bldg.
 Jan. 19, Scottsbluff, Panhandle Research and Extension Center
 Jan. 20, Ogallala, Holiday Inn
 Jan. 21, Holdrege, 4-H Bldg.
 Jan. 22, York, Chances "R" Restaurant

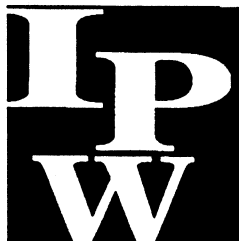
Corn rootworm insecticides evaluated

The following data are from corn rootworm insecticide performance studies conducted in 1992 by Lance Meinke, associate professor of entomology, at UNL's Agricultural Research and Development Center near Mead. Consider this information only in the context of these experiments.

The experimental design was a randomized complete block with four replications. Root ratings were based on a 1-6 rating scale, with 1 being no damage and 6 meaning three or more root nodes were destroyed. Treatments which resulted in root ratings of 3 or less would be expected to provide commercially acceptable levels of root protection against corn rootworms. Experiment 1 was planted on May 4 while

Experiments 2 and 3 were planted on May 8. Planting-time treatments were applied either into an open seed furrow (I) or as a 7-inch band over the open seed furrow (TB). Cultivation treatments were applied in a 7-inch band on June 5 and cultivated into the soil. For comparative purposes, two T-banded planting-time treatments were included in the cultivation test. Means in each column followed by the same letter are not statistically different ($p \leq 0.05$). These experiments included some insecticides and application rates which are not registered and not legal for general use. Follow all pesticide label directions and apply only federally registered pesticides.

Steve Danielson
 Extension Entomologist, Lincoln



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Lisa Brown Jasa, Editor

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Corn rootworm insecticide tests *(Continued from page 2)*

Table 1. 1992 Experiment #1. Mead
Planting-Time Applications: Root Damage
Evaluation

<i>Insecticide</i>	<i>Rate/ Placement¹ oz ai/ 1000 ft</i>	<i>Mean Root Rating² (1-6 scale)</i>
Force 1.5G WF1535B	0.12 TB	1.93 a
Dyfonate II 20G	1.2 TB	2.00 ab
Counter 20G	0.9 I	2.00 ab
Aztec 2.1G	0.14 TB	2.06 ab
Fortress 5G	0.3 TB	2.06 ab
Counter 20G	1.2 TB	2.06 ab
Counter 20G	1.2 I	2.06 ab
Counter 20G	0.9 TB	2.06 ab
Counter 15G	1.2 TB	2.06 ab
Counter 15BG	1.2 TB	2.06 ab
Counter 20CR	1.2 I	2.06 ab
Dyfonate II 15G	1.2 TB	2.06 ab
Thimet 20CR	1.2 I	2.13 a-c
Lorsban 15G XRM-5362	1.2 TB	2.13 a-c
Aztec 2.1G	0.14 I	2.20 a-d
IS 059 DB 0.5625G	0.044 TB	2.20 a-d
IS 059 BB 0.375G	0.029 TB	2.20 a-d
IS 059 CB 0.75G	0.059 TB	2.20 a-d
Counter 15G	1.2 I	2.26 a-d
Counter 20CR	1.2 TB	2.26 a-d
Fortress 5G	0.3 I	2.26 a-d
Lorsban 15G XRM-4372	1.2 TB	2.26 a-d
Lorsban 15G NAF-1	1.2 TB	2.26 a-d
Force 1.5G GFU524	0.12 I	2.26 a-d
Force 1.5G GFU524	0.12 TB	2.26 a-d
IS 059 CB 0.75G	0.029 TB	2.33 a-d
Thimet 20CR	1.2 TB	2.33 a-d
Counter 15BG	1.2 I	2.33 a-d
IS 059 CB 0.75G	0.044 TB	2.40 a-e
Force 1.5G WF1535B	0.12 I	2.46 b-e
AC513,858 20G	1.2 TB	2.60 c-f
Thimet 20G	1.2 TB	3.20 gh
Untreated		3.53 h
Untreated		4.13 i

¹ I = insecticide applied into open seed furrow; TB = insecticide applied in a 7-inch band over open seed furrow.

² Means followed by the same lower case letter are not statistically different ($P \leq 0.05$).

Table 2. 1992 Experiment #2. Mead
First Cultivation Applications: Root Damage
Evaluation

<i>Insecticide</i>	<i>Rate oz ai/1000 ft¹</i>	<i>Mean Root Rating (1-6 scale)²</i>
Counter 15G	1.2	2.55 ab
Dyfonate II 20G	1.2	2.65 ab
Aztec 2.1G	0.14	2.65 ab
Thimet 20G	1.2	2.70 ab
AC 513,858 1.22.80 ab		
Counter 20CR	1.2	3.10 b
Lorsban 15G	1.2	3.20 bc
Untreated	3.90 c	

Planting-Time Standards³

Counter 15G	1.2	2.15 a
Dyfonate II 20G	1.2	2.35 a

¹ First cultivation treatments were applied in a band over the row on 5 June 1992 and cultivated into the soil.

² Means followed by the same lower case letter are not statistically different ($P \leq 0.05$).

³ Planting-time standards were applied in a T-band over the open seed furrow.

Table 3. 1992 Experiment #3
Planting-Time Rate Study: Root Damage
Evaluation¹

<i>Insecticide</i>	<i>Rate oz ai/1000 ft</i>	<i>Mean Root Rating (1-6 scale)²</i>
Dyfonate II 20G	1.2	2.10 a
Counter 15G	0.9	2.20 ab
Counter 15G	1.2	2.30 ab
Counter 15G	0.6	2.30 ab
Fortress 5G	0.22	2.40 ab
Dyfonate II 20G	0.6	2.40 ab
Fortress 5G	0.15	2.50 ab
Dyfonate II 20G	0.9	2.55 ab
Lorsban 15G	1.2	2.55 ab
Lorsban 15G	0.6	2.70 ab
Fortress 5G	0.3	2.70 ab
Lorsban 15G	0.9	2.75 b
Untreated		3.95 c
Untreated		4.05 c

¹ Insecticides were applied as a T-band over the open seed furrow.

² Means followed by the same lower case letter are not statistically different ($P \leq 0.05$).

Commercial applicator pesticide training

Initial certification

Certification is based on satisfactory test scores on a general standards exam plus one or more categories. Individuals can be trained in the general standards area and in one category at a training/testing session. Category exams can be taken without training at a given session. Participants should bring a pencil and ball point pen for the tests.

Preregistration is required, but there is no registration of testing fee. Study materials for each category cost \$5. To register or order study materials, contact your local Extension office or the Extension Pesticide Coordinator, 101 Natural Resources Hall, University of Nebraska, Lincoln, NE 68583-0818 or call (402) 472-1632. At all meetings, check-in is from 8:15-8:30; general standards training and testing is from 8:30 a.m. to noon and category training and testing is from 1-4 p.m. Meeting schedules and their categories are:

Feb. 10, Scottsbluff, Panhandle Research and Extension Center, UNL, 4502 Avenue I.

Categories: Ag plant; ornamental and turf; aquatics; right of way; structural; food processing, grain handling and grain fumigation.

Feb. 12 North Platte, Stockman Inn, I-80 and Hwy 83
All categories.

Feb. 16, Grand Island, College Park, Hwys 34 and 281

Categories: Ag plant; ornamental and turf; aquatics; right of way; structural; food processing, grain handling and grain fumigation.

Feb. 23, Lincoln, Nebraska Center, 33rd and Holdrege

Categories: Ag plant; ag animal; forestry; ornamental and

turf; right of way; structural; public health; regulatory; food processing, grain handling and grain fumigation; wood preservatives

Feb. 24, Norfolk, Villa Inn, Hwys 275 & 81

Categories: Ag plant, ornamental and turf; right of way; structural; food processing, grain handling and grain fumigation.

Feb. 25, Omaha, Douglas County Extension Office, 8015 West Center Road

Categories: ag plant; forestry; right of way; structural, public health; regulatory; food processing, grain handling and grain fumigation; wood preservatives.

Feb. 26, Omaha, Douglas County Extension Office, 8015 West Center Road

Categories: Ornamental and turf only.

March 3, Kearney, Buffalo County Extension Office, 1400 East 34th St.

Categories: ag plant, ornamental and turf; right of way; structural; food processing, grain handling and grain fumigation.

Recertification

Recertification will be conducted at the 12 crop protection clinics to be conducted in January (see page 2), in the following categories: Ag plant; aquatics; seed treatment; right of way; regulatory; demonstration and research.

Preregistration is not required for the recertification training. Registration will be held from 8:30-9 a.m. with recertification training from 9 a.m. to 4 p.m. Following is the meeting schedules by site and type of category included.

Feb. 2, Lincoln, Nebraska Center, 33rd and Holdrege streets

Categories: ag animal; for-

estry; ornamental and turf; right of way; structural; public health; food processing, grain handling and grain fumigation; wood preservatives.

Feb. 3, Norfolk, Villa Inn, Hwys 275 & 81

Categories: forestry; ornamental and turf; right of way; structural; public health; food processing, grain handling and grain fumigation; wood preservatives.

Feb. 4, Omaha, Douglas County Extension Office, 8015 West Center Road

Categories: Right of way; structural; public health; food processing, grain handling, and grain fumigation; wood preservatives.

Feb. 5, Omaha, Douglas County Extension Office, 8015 West Center Road

Categories: forestry; ornamental and turf.

Feb. 9, Scottsbluff, Panhandle Research and Extension Center, 4502 Avenue I

Categories: forestry; ornamental and turf; aquatics; right of way; structural; public health; food processing, grain handling and grain fumigation.

Feb. 11, North Platte, Stockman Inn, I-80 and Hwy 83

Categories: ag animal; forestry; ornamental and turf; aquatics; right of way; structural; public health; food processing, grain handling and grain fumigation; wood preservatives.

Feb. 15, Grand Island, College Park, Hwys 34 and 281

Categories: forestry; ornamental and turf; aquatics; right of way; structural; public health; food processing, grain handling and grain fumigation; wood preservatives.

Stored grain = cash in the bin

Once the last grain has been augered into the bin and the hatches closed, there is a tendency to forget what is needed to maintain grain quality. However, without proper management, which includes frequently checking grain condition, stored grain quality can rapidly deteriorate.

Check grain condition at least once a month during winter and every two weeks during the rest of the year. Failure to monitor grain condition throughout the entire storage period is a frequent mistake. A small area which starts to heat or otherwise "go out of

condition" can quickly spread within the bin. Think of the grain as being cash in the bin and consider how frequently it would get checked if that were the case.

Some areas and conditions to check when monitoring grain quality include:

- Grain surface for condensation, crusting, wet areas, molds, and insects.

- Bin roof for condensation and leaks.

- Grain mass for non-uniform temperatures, high moisture pockets or layers, molds, and insects.

- Fan exhaust air for any off-odors.

If problems are detected, they need to be evaluated and corrected as soon as possible. This may include cooling with aeration, further drying, or fumigation for insect control.

David P. Shelton

Extension Agricultural Engineer

David D. Jones

Assistant Professor, Biological

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Thomas L. Thompson

Extension Grain Drying Specialist

Manage aeration systems to protect stored grain

Aeration, or moving relatively low volumes of air through stored grain, is important to maintaining stored grain quality. The primary objectives of aeration are: 1) to keep the grain at a seasonally cool temperature; and 2) to maintain uniform grain temperatures, preferably with no more than a 10°F difference in temperature from one part of the bin to another. These objectives can be achieved by keeping grain temperatures within 10°F to 15°F of the average ambient air temperature. Seasonal temperature changes require changes in aeration fan operation.

A variety of fan operation schedules can be used to maintain the quality of stored grain. The following management procedures will help assure that basic aeration requirements are met. Adapt as necessary to meet individual needs and conditions.

Fall

Move at least one (preferably two) cooling zone(s) through the

grain to remove field or dryer heat and to help equalize moisture contents. Thereafter, move one cooling zone per month through the grain until it is cooled to between 35°F and 40°F by Dec. 1 and to equalize grain mass temperatures.

Check the grain temperature and condition every two weeks and as needed to monitor cooling zone progress.

The initial cooling is important, so do not skimp on fan operation. Turn the fans on as soon as grain covers the perforated floor or aeration ducts, and operate continuously until the grain has been cooled to the prevailing outside temperature. Since cooling is the primary concern, especially if the grain has come from a dryer, do not turn off the fans during rainy or humid weather. Failing to properly cool the grain can cause more problems than the small amount of rewetting that occurs from running the fan on a humid day.

Winter

Check the grain temperature and condition at least once a month.

Aerate as needed to maintain grain temperatures between 35°F and 40°F.

During winter, aerate the grain on a maintenance schedule to control localized temperature increases. It may not be necessary to run the fan at all during the winter if the grain remains dry and in good condition, and if temperatures are stable. One aeration strategy is to operate the fan for a few hours as part of a bi-weekly or monthly grain checking program. This allows the operator to check the exhaust air for off-odors, an indication that the grain requires immediate attention.

Avoid operating the fan on warm days. When air temperatures are warmer than grain temperatures, fan operation can

(Continued on page 6)

Aeration *(Continued from page 5)*

result in moisture condensing and possibly freezing on the cold grain. Prevent this condensation problem by operating the fan only when air temperatures are the same as or cooler than grain temperatures.

Freezing grain is not recommended because of the increased likelihood of condensation problems if the grain is not properly warmed in the spring. However, freezing the grain becomes a secondary concern if the grain begins to heat or go out of condition. If a problem occurs, operate the aeration fan continuously, regardless of weather conditions, until the problem is corrected.

Spring

If the grain is frozen, thaw by moving a warming zone completely through the grain as soon as outside air temperatures remain above freezing.

If the grain is not frozen and will be fed or sold by June, aerate only as needed to control "hot spots" and heating problems.

If the grain will be held into or through the summer, move one warming zone per month completely through the grain until the grain mass is uniformly warmed to about 60°F.

Check the grain temperature and condition at least every two weeks and as needed to monitor warming zone progress.

It may seem counterproductive to warm grain in the spring after cooling it in the fall. In fact, there is little reason to warm the grain if it is to be marketed or fed by early summer. One exception is that frozen grain should always be thawed before being handled in warm weather. Operate aeration fans continuously when thawing frozen grain to prevent freezing of condensed moisture on the grain.

Since average outside air temperatures change at the rate of 2.5°F to 3°F per week, move one warming zone per month through the grain to maintain uniform grain temperatures and to warm the grain to 60°F in preparation for summer storage. This temperature is cool enough to slow insect activity, yet warm enough to minimize condensation if the aeration fans need to be operated to control localized heating in the bin. Operate fans continuously for each successive warming zone.

Summer

Check the grain at least once every two weeks to monitor temperature, moisture, and insect activity.

Consider operating the fan one cool night per week through June to help maintain grain temperatures at 60°F.

Otherwise, cover fan openings during June, July, and early August.

Grain checking is very important during the summer because grain is being held at higher temperatures and aeration conditions are less favorable than during the rest of the year. Grain temperatures need to be checked and recorded regularly. Insect activity is also at a peak during the summer, and frequent checking is required if infestations are to be controlled before they develop into major problems.

Not all of the grain going into the summer at 60°F will remain at that temperature.

The grain along the bin sidewall and the grain surface will be gradually warmed during summer. Operating the aeration fan on cool nights helps to bring these temperatures back down. However, aeration is normally

beneficial for only part of the summer because of high temperatures during July and August. Do not operate the fan during these months unless a problem develops.

Although aeration fans are not normally operated during this period, there are still some temperature control measures that can be effective. One is to ventilate the roof space using gravity vents or roof exhaust fans to prevent high summertime temperature build up.

Perhaps more important than moving air through the roof space is to keep the warm air from moving down through the grain. The best way to prevent this is to cover the aeration fan openings when the fans are not operating. If the fans are not covered, the cooler air in the grain will move out of the bin through the fan and draw warmer air down into the grain. This reverse chimney effect can gradually warm all of the grain in the bin to 70°F to 80°F. These temperatures increase the risk of mold problems and provide a favorable environment for insect activity.

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Extension Agricultural Engineer
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Extension Grain Drying Specialist

Late season soybean diseases still a threat

Soybeans are subject to several late season diseases that are commonly seen as the crop matures. The late season diseases of concern are pod and stem blight, stem canker, anthracnose, and charcoal rot. In Nebraska these are usually of minor importance, but their significance increases during stress years when infection by the various fungi occurs earlier than normal and weather favors their further development. Fortunately, the 1992 growing season was not particularly stressful for the crop and we're not seeing an inordinate amount of these late season diseases. When problems do develop, use the following guide for disease identification.

Pod and stem blight: Infected plants develop large numbers of

small, black pimple-like structures (fungal fruiting bodies) in straight rows along the stem and scattered on dry, poorly developed pods. Infected seeds are dull, shriveled, often cracked and may be partially covered with a white moldy growth.

Stem canker: Dark, reddish-brown, then tan girdling cankers form at the base of branches where they attach to the stem. Later numerous small, black fruiting bodies develop in the sunken cankers, but these are not arranged in rows (as they are in pod and stem blight). Scattered plants in fields infected early in the season may wither and die prematurely.

Anthracnose: Indefinite, reddish to dark-brown or black blotchy areas develop on infected stems and

Pods. Later, small black fruiting bodies that look like pin cushions are produced within the dark blotches. The pin cushions contain black spines that can be easily seen with a 10-power hand lens.

Charcoal rot: Infection occurs through the roots and develops in the tap root and lower stem tissues. Black streaks appear in the woody tissues when the infected parts are cut lengthwise with a pocket knife. As disease development continues, numerous small black specks (looks like powdered charcoal) form just beneath the bark at stem bases, giving the tissues a grayish-black color.

David S. Wysong
Extension Plant Pathologist
Lincoln

Winter meetings

Dec. 17, Midwest Marketing Conference, 9 a.m. to 3:15 p.m., Southeast Community College, Lincoln. Storm date is Dec. 18. Preregistration is required; cost is \$15. To preregister, call 1-800-779-5000, Ext. 310. For more information, contact Dave Varner, Extension agent in Lancaster County, at 471-7180 until Nov. 22 and 441-7180 after that.

Jan. 26, Mid-Nebraska Water Conference and Trade Show, 8:30 a.m. to 3:30 p.m., Adams County Fairgrounds, Hastings.

Feb. 4, Conservation Planting and Sustainable Agriculture, 8:15 a.m. registration; program lasts until noon. Adams County Fairgrounds, Hastings.

Feb. 5, Eastern Nebraska Grain Sorghum Production/Marketing Exposition. Lancaster County Extension Conference Center, 444 Cherrycreek Road, Lincoln. For more information, contact Dave Varner, Extension agent in Lancaster County, at 471-7180 until Nov. 22 and 441-7180 after that. Preregistration is not required.

Feb. 16-17, Vegetable Growers Conference, New World Inn, Columbus. Educational sessions for commercial vegetable growers. Contact: Laurie Hodges, UNL Horticulture Dept., (402) 472-2854.

Feb. 23-24, Microcomputers in Agriculture: A User's Conference. Kearney Ramada Inn. Preregistration is requested. For materials, contact Vernon Waldron, Extension Agent in Douglas County, at 444-7804.

Feb. 24, Wheat Technology Conference, Holiday Inn Restaurant, Kimball. Wheat grain marketing will be the focus. Registration at 9 a.m., program begins at 9:30 a.m. For more information contact Drew Lyon, Extension Weeds Specialist at the Panhandle Research and Extension Center, 4502 Ave. I, Scottsbluff, (308) 632-1266.

Feb. 25, Wheat Technology Conference. Lion's Den at Chappell. Wheat grain marketing will be the focus. Registration at 9 a.m., program begins at 9:30 a.m. For more information contact Drew Lyon, Extension Weeds Specialist at the Panhandle Research and Extension Center, 4502 Ave. I, Scottsbluff, (308) 632-1266.